ABSTRACT OF THE DISCLOSURE

The present invention provides an apparatus for measuring the thickness of a material using the focal length of a lensed fiber and an associated method. The lensed fiber generates a Gaussian Beam and moves vertically with respect to the material. The strength of the beam reflected from the material is detected when the beam emitted from the lensed fiber is focused on the material. The thickness of the material is calculated based upon the detected strength of the reflected beam.

Please replace the second paragraph in page 3 with the following amended paragraph:

FIG. 1 is a diagram which describes the beam emitted from a lensed fiber that takes the form of a ~~Gaussain~~ Gaussian Beam and the process of focusing the beam on a coated material.

Please replace the second full paragraph in page 4 with the following amended paragraph:

At this instance, if the surface of the material lies within the focal length of the lensed fiber then the strength of the reflected beam is at its peak. This is because the strength of the beam passing through the lensed fiber 10 progresses in the form of a ~~Gaussain~~ Gaussian Beam. This method enables the thickness measurement of materials through an analysis of the strength of the beam reflected from the materials with several layers.

Please replace the paragraph bridging pages 6 and 7 with the following amended paragraph:

As shown in FIG. 5, the apparatus for measuring the thickness of a material according to the present invention comprises; a Piezo Electric Transducer 12 (PZT) which moves vertically against the material to be measured; a lensed fiber 10 which is attached to said PZT for emitting a Gaussian beam; a laser 14 for emitting a beam source; a beam shutter 16 for

stopping the beam output returning; a 3dB optical fiber coupler for separating the beam strength from said lensed fiber 10 and laser 14 by 50:50; a beam detector 20 for detecting reflected beam strength from the end of said lensed fiber; a RC filter 22 for filtering said detected beam; a microprocessor for analyzing said detected beam strength; an amplifier 26 for amplifying the strength of electric signals according to the control of said microprocessor 24; a PZT driver 28 for driving PZT 12 according to the strength of electric signals amplified by said amplifier 26; a X-Y axis scanner driver 30 for driving the X-Y axis scanner according to the control of said microprocessor 24; a X axis scanner 32 for driving the X axis according to the driving of the X-Y axis scanner; and a Y axis scanner ~~32~~ 34 for driving the Y axis according to the driving of the X-Y axis scanner.